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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,299	03/27/2001	Fadi Maamari	LVPAT028US	7777

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EXAMINER

TON, DAVID

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 06/04/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,299

Applicant(s)

MAAMARI ET AL.

Examiner

David Ton

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-14, 19-38, 49-52 and 57-76 is/are allowed.
- 6) ☒ Claim(s) 1 and 39 is/are rejected.
- 7) ☒ Claim(s) 2-10, 15-18, 40-48 and 53-56 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2&3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

1. Claims 1-76 are presented for examination.

Claim Rejections - 35 USC ' 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. § 102(b) as being clearly anticipated by **Koseko et al.** (Koseko) article "**Tri-state Bus Conflict Checking Method for ATPG Using BDD**" (art cited by Applicants).

4. As to claim 1, Koseko teaches the invention as claimed, including a method of verifying a logic design for proper operation of tri-state buses specified in the design [see section 1: introduction], the method comprising:

For each bus in the circuit design [Fig. 1(a) and Fig. 1(b)] performing an exhaustive analysis [using bus control logic (exclusive logic) of Fig. 2] on a min-cut set of logic controlling the bus [Fig. 3] and designating each said bus as either conclusively conflict-free and float-free [page 514, left column, lines 4-7,

"correct bus"] or as inconclusive [page 514, left column, lines 20-24, "unjustifiable bus"].

Claim Rejections - 35 USC ' 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 39 is rejected under 35 U.S.C. § 103 (a) as being unpatentable over **Koseko et al.** (Koseko) article "**Tri-state Bus Conflict Checking Method for ATPG Using BDD**" (art cited by Applicants).

7. As to claim 39, Koseko teaches the invention substantially as claimed, including a method of verifying a logic design for proper operation of tri-state buses specified in the design [see section 1: introduction], the method comprising: for each bus in the circuit design [Fig. 1(a) and Fig. 1(b)] performing an exhaustive analysis [using bus control logic (exclusive logic) of Fig. 2] on a min-cut set of logic controlling the bus [Fig. 3] and designating each said bus as either conclusively conflict-free and float-free [page 514, left column, lines 4-7, "correct bus"] or as inconclusive [page 514, left column, lines 20-24, "unjustifiable bus"].

Koseko does not explicitly teach a program product for application of his method. However, a program product for a computer application of a method is well known in the art.

It would have been obvious to one of ordinary skill in the Data Processing art at the time of the invention was made to provide a program product for computer application of the Koseko method as a matter of choice. This modification would have been obvious and a person having ordinary skill in the art would have been motivated to do so because it would provide a computer application.

Allowable Subject Matter

8. Claims 11-14, 19-38, 49-52 and 57-76 are allowed.
9. Claims 2-10, 15-18, 40-48 and 53-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is an Examiner's Statement of Reasons for Allowance:

The prior art of record teaches the claimed invention substantially, but it fails to teach or suggest singly or in combination step of performing a full exhaustive analysis of the bus when the exhaustive analysis on the min-cut set of logic is inconclusive.

Conclusion

11. The prior art of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Ton, whose telephone number is (703) 306-3043. The examiner can normally be reached on Monday through Thursday from 6:30 AM to 4:00 PM and alternate Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady, can be reached at (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DT

May 24, 2004

**DAVID TON
PRIMARY EXAMINER**